

GLOSSARY

Abduction The movement of a body part, usually a limb, away from the sagittal plane. When the arm is raised to the side from standard anatomical position, *abduction* of the arm occurs. For the special case of fingers and toes, *abduction* is movement of the digit away from the midline of the hand or foot (spreading the digits).

Ablation The removal of part of the body; usually used when referring to the removal of teeth.

Abscess A localized collection of pus in a cavity formed by tissue disintegration; often found within alveolar bone near the tooth root apices.

Achondroplasia A hereditary form of dwarfism with limb shortening, nearly normal trunk and vault development, and a small face; caused by a congenital disturbance of cartilage formation at the epiphyses.

Acromegaly A condition caused by an overly productive pituitary, but after the epiphyses are fused; the most dramatic osteological manifestation of *acromegaly* is growth at the mandibular condyle and a resulting elongation and distortion of the lower jaw.

Adduction The movement of a body part, usually a limb, toward the sagittal plane. Bringing the arm down to slap the side of the thigh is *adduction*. For the special case of fingers and toes, *adduction* is movement of the digit toward the midline of the hand or foot (closing the digits). The opposite of abduction.

Adolescent An individual between 12 and 20 years old.

Adult Often used for any individual whose long bone epiphyses have all fused. Usually taken to denote an age of greater than 18 years. See also young adult, middle adult, and old adult.

Agenesis The lack of tooth formation at a given position.

Ala (plural: *alae*) In the shape of a wing.

Alveolar resorption The atrophy, through remodeling, of alveolar bone.

Alveolus (plural: *alveoli*) A tooth socket. The mandibular canine *alveolus* is deeper than the mandibular incisor *alveolus*.

Ameloblasts Cells that form enamel through a process known as amelogenesis.

Amerindian See Native American.

Ankylosing spondylitis A condition in which the ligaments of the spine ossify, immobilizing the adjacent vertebrae.

Ankylosis An abnormal, complete immobility or fixation of a joint, resulting from pathological changes in the joint.

Anlage (pronounced *Ann-LOG-uh*) The aggregation of cells indicating the first trace of an organ during embryogenesis.

Annulus fibrosus The tough, fibrous ring around the periphery of an intervertebral disk.

Antebrachial Of, belonging to, or related to the forearm.

Antecubital Of, belonging to, or related to the front of the elbow.

Antemortem Related to a period (an unspecified length of time) before the time of death.

Anterior A directional term meaning “towards the front of the body” (in standard anatomical position).

Antimere The opposite side, usually used for bilaterally paired elements.

Apical A directional term for teeth meaning “towards the tip of the tooth root.”

Approximal See interproximal.

Apophysis An outgrowth or small bony projection.

Appendicular skeleton Bones of the limbs, including the shoulder and pelvic girdles (but not the sacrum).

Arcade See dental arcade.

Arthritis Inflammation of a joint.

Arthropathy Any disease affecting the joints.

Articulated 1) Bones positioned in close approximation in order to mimic their relative placements within a living individual; 2) An interment in which the individual decomposed in the same place and position he or she was buried in, as attested to by relative position and orientation of the bones. Contrasts with disarticulated.

Articulation A place where two anatomically adjacent bones contact.

Atrophy Wasting away and reduction in size, particularly after the tissue or organ has matured.

Attrition Wear, usually used in reference to the teeth.

Auditory exostosis A bony growth within the external acoustic meatus.

Avulsion The forcible tearing away of part of a structure.

Axial skeleton Bones of the trunk, including the vertebrae, sacrum, ribs, and sternum.

Axillary Of, belonging to, or related to the armpit.

Ball-and-socket joint A spheroidal joint (such as the hemispherical femoral head fitting into the acetabulum), that allows for movement in many directions.

Basicranium Bones of the cranial base.

Bifid Split into two parts by a cleft or notch. See also bifurcated.

Bifurcated Split into two branches or forks. See also bifid.

Bilobate Composed of two distinct (but connected) lobes or blunt projections.

Boss A smooth, round, broad eminence. Female skulls tend to show more *bossing* of the frontal bone than those of males.

Brachial Of, belonging to, or related to the arm; specifically the upper arm.

Buccal Pertaining to the cheek. As a directional term for teeth, it refers to the side or surface of the tooth facing the cheek. Its use is restricted to premolars and molars. See also labial.

Buccolingual An axis passing from the lingual (tongue) side to the buccal (cheek) side of a molar or premolar; the axis in which the breadth or width of cheek teeth is measured. See also labiolingual and mesiodistal.

Burial Covering by earth (either intentionally in a grave, or accidentally) or placement in a tomb. Intentional burial is synonymous with inhumation and interment.

Calculus Tartar, a deposit of calcified dental plaque on teeth.

Callus Hard tissue formed in the osteogenic layer of the periosteum as a fracture repair tissue; normally replaced.

Calotte A calvaria without the base.

Calvaria The cranium excluding the face.

Canal A tunnel-like passage, usually extending from a foramen. The carotid *canal* is found at the base of the skull.

Canaliculus (plural: *canaliculi*) A very small passage or duct. Within compact bone, cells called osteocytes are locally interconnected via a network of *canaliculi*.

Cancellous bone Spongy, porous lightweight bone found under protuberances where tendons attach, in the vertebral bodies, in the ends of long bones, in short bones, and sandwiched within flat bones; also called trabecular bone.

Carabelli's effects An accessory cusplet or other feature that sometimes develops on the upper first permanent molar or upper second deciduous molar's lingual protocone surface. Also called Carabelli's cusp or Carabelli's trait.

Carcinoma An invasive malignant tumor arising from epithelial tissue. Contrasts with sarcoma.

Caries A disease characterized by the progressive decalcification of enamel or dentine; the hole or cavity left by such decay.

Carpal Of, belonging to, or related to the wrist.

Cartilage A form of connective tissue consisting of cells embedded in a matrix.

Cartilaginous joint A joint, such as that between the first rib and the sternum, in which the articulating bones are united by means of cartilage and very little movement is allowed. Synonymous with synchondrosis.

CAT scan See computed tomography.

Caudal Towards the tail (or coccyx). The lumbar vertebrae are caudal to the thoracic vertebrae.

Cephalic Of, belonging to, or related to the head. Also a directional term meaning "towards the head." See also cranial.

CEJ See cementoenamel line or junction.

Cementum A bone-like tissue that covers the external surface of tooth roots, surrounding the dentin of the root and neck of a tooth.

Cervical, cervix Pertaining to the neck or to a neck-like (*i.e.*, constricted) anatomical feature. As a directional term for teeth meaning "close(r) to the cervicoenamel junction."

Cementoenamel line or junction (CEJ) The line encircling the crown of the tooth, delimiting the most rootward extent of the enamel. Also called cervicoenamel line.

Child An individual between 3 and 12 years old.

Circumduction A movement which is a combination of abduction and adduction, as well as flexion and extension, resulting in an appendage being moved in a cone-shaped path. When the driver of a slow vehicle signals someone behind him to pass, this "waving on" is often done by *circumducting* the arm.

Cnemial Of, belonging to, or related to the shin or tibia.

Collagen A fibrous structural protein constituting about 90% of bone's organic content.

Commingled Bone assemblages containing remains of multiple individuals, often incomplete and fragmentary.

Comminuted fracture A fracture in which the bone splinters.

Compact bone The solid, dense bone that is found in the walls of bone shafts and on external bone surfaces, also called cortical bone.

Complete fracture A fracture in which broken ends of a bone become separated.

Compound fracture A fracture in which the broken bone perforates the skin.

Computerized tomography (CT scanning) A radiological technique that involves the computer processing of a set of images taken at different angular orientations, generating three-dimensional views and cross-sectional slices of an object. Sometimes referred to as CAT scanning, or computerized axial tomography.

Condyle A rounded articular process. The occipital *condyles* lie on the base of the cranium and articulate with the uppermost vertebra, the atlas.

Conoid Having a cone-like shape.

Convex Having a profile or a surface that curves outward.

Coronal plane A plane that divides the body into front and rear portions. Synonymous with frontal plane.

Coronal suture The suture that lies between the frontal and parietal bones.

Cortical bone See compact bone.

Costal Of, belonging to, or related to the ribs.

Coxal Of, belonging to, or related to the pelvis, hip, or hip-joint.

Cranial Refers to bones of the skull, including the mandible. Contrasts with postcranial. As a directional term, it means “towards the head.” When referring to a human in standard anatomical position, the term is synonymous with superior in humans. See also cephalic.

Cranial sutures Fibrous joints of the skull. Articulations of the skull bones along joints with interlocking, sawtooth, or zipper-like articulations.

Craniosynostosis Same as craniostosis; premature fusion of cranial sutures resulting in abnormal skull shape.

Cranium The skeleton of the head; all of the bones of the skull except for the mandible.

Cremation A mortuary practice involving the intentional burning of the body.

Crenulated Having a finely wrinkled, notched, or undulating appearance.

Crest A prominent, usually sharp and thin ridge of bone; often formed between adjacent muscle masses. The sagittal *crest* is a structure that forms as a result of the development of large *temporalis muscles* in the gorilla. Also, an elevated feature connecting cusps on teeth.

Cribra orbitalia Lesions on the roof of the orbit, usually in the form of bilateral pitting of the orbital part of the frontal.

Cross striae Circadian growth increments in the Striae of Retzius.

Cruciate Crossed, or cross-shaped. See also cruciform.

Cruciform In the shape of a cross. See also cruciate.

Crural Of, belonging to, or related to the leg, specifically the lower leg or calf.

Cubital Of, belonging to, or related to the elbow.

Cuneiform In the shape of a wedge.

Cusp An occlusal projection on a the crown of a tooth. See also mamelon.

Cutaneous Of, belonging to, or related to the skin.

CT scan See computerized tomography.

Deciduous teeth The first set of teeth to form, erupt, and function, doing so in the first years of life. Often informally called “baby teeth.”

Dehiscence A developmental abnormality that results in a perforation of the tympanic plate of the temporal bone; sometimes called foramen of Huschke.

Deep A directional term meaning “farther from the surface;” the opposite of superficial. The dentine core of a tooth is deep to the enamel.

DEJ See dentinoenamel junction.

Deltoid In the shape of the Greek letter Δ (*delta*); *i.e.*, having a triangular shape or outline.

Demography The study of population composition and vital statistics.

Dental arcade One of the two arches of teeth: upper (maxillary) or lower (mandibular).

Dental formula A means for specifying how many of each of the four types of teeth is typical for a population or species. A series of eight numbers giving the number of incisors, canines, premolars, and molars for both upper and lower arcades. The human dental formula is $\frac{2:1:2:3}{2:1:2:3}$, whereas that of primitive mammals is $\frac{3:1:4:3}{3:1:4:3}$. If the formula is identical for both upper and lower teeth, the formula may be abbreviated to just that for the upper dentition.

Dental hypoplasia A condition characterized by transverse lines, pits, and grooves on the surface of tooth crowns; such disturbances are defects in dental development.

Dental plaque The matrix and its resident community of bacteria that forms on a tooth.

Dentin A special type of calcified, but slightly resilient, connective tissue; primary dentin develops during growth, whereas secondary dentin forms after root formation is complete.

Dentinoenamel junction (DEJ) The boundary between the enamel cap and the underlying dentin. Sometimes referred to as enamel-dental junction or EDJ.

Dentition A set of teeth. Humans have two successive dentitions: a deciduous dentition and a permanent dentition.

Deoxyribonucleic acid (DNA) The molecule of heredity that contains the genetic code.

Dermal Of, belonging to, or related to the skin.

Diachronic Changes or events considered through time.

Dermal bone See intramembranous ossification.

Diagenesis Chemical, physical, and biological changes undergone by a bone through time.

Diaphysis The shaft of a long bone.

Diffuse idiopathic skeletal hyperostosis (DISH) A pathological condition characterized by the ossification of spinal ligaments (resulting in a fluid, 'melted candle wax' appearance of the vertebral column in which several successive vertebrae are involved), as well as the ossification of additional idiosyncratic tendinous and ligamentous attachments. Also called Forestier's disease.

Digital In anatomy, of, belonging to, or related to the finger(s) or toe(s).

Diphyodont Having two (sequential) sets of teeth (or dentitions) during a lifetime.

Disarticulated 1) Bones which have been removed from their joints; 2) An interment in which the bones have been purposefully taken from their original, anatomical position after decomposition, and then rearranged. Contrasts with articulated.

Discontinuous morphological traits Also called epigenetic variants, discrete traits, or nonmetric variation; variation observed in bones and teeth, and in the form of differently shaped and sized cusps, roots, tubercles, processes, crests, foramina, articular facets and similar features.

Discrete variables Variables composed of a finite number of values, such as nonmetric traits that are usually scored as present or absent.

DISH See diffuse idiopathic skeletal hyperostosis.

Distal A directional term meaning "farther away." As a directional term for teeth, it refers to the side or surface of the tooth farthest from the midline of the dental arcade. As a directional term for other bones, it refers to the portion of the bone farther from the vertebral column. Thus, the styloid process is on the distal radius, and the distal end of the seventh rib articulates with the sternum via costal cartilage. Distal can also be used as a term of relative position, regardless of the absolute position of the points or features in question; *eg.*, the lesser trochanter is distal to the femoral head.

DNA See deoxyribonucleic acid.

Dorsal Of, belonging to, or related to the back. Also a directional term meaning "towards the back." When referring to a human in standard anatomical position, the term is synonymous with posterior.

Dorsiflexion Flexion of the entire foot away from the ground. When a mime walks on her heels, her feet are *dorsiflexed*.

Dysplasia An abnormal development of bone tissue.

EAM See external acoustic meatus.

Eburnation Worn, polished, ivory-like appearance of bone resulting from exposure and wear of adjacent subchondral bone at a joint.

Ectocranial Outer surface of the cranial vault. The temporal line is on the *ectocranial* surface of the parietal.

Edentulous Lacking teeth.

EDJ See dentinoenamel junction.

Eminence A bony projection; usually not as prominent as a process. The articular *eminence* of the temporal bone is the rounded area with which the mandibular condyle articulates during chewing.

Enamel A layer of extremely hard, brittle material that covers the crown of a tooth.

Endochondral ossification One of the two processes by which bone is formed in mammals. In contrast to intramembranous ossification, bone formed endochondrally is first formed in cartilage. These cartilage precursors (called cartilage models) are then gradually replaced by bone tissue.

Endocranial The inner surface of the cranial vault. The brain fills the *endocranial* cavity.

Endosteum An ill-defined and largely cellular membrane that lines the inner surface of bones.

Epicondyle A nonarticular projection adjacent to a condyle. The lateral *epicondyle* of the humerus is located just proximal to the elbow, adjacent to the lateral condylar surface.

Epiphysis The cap at the end of a long bone that develops from a secondary ossification center.

Eversion Turning the sole of the foot outward so that it faces away from the midline of the body. Also known as pronation of the foot.

Evulse To forcibly extract.

Exostosis A bony growth from a bone surface, often involving the ossification of muscular or ligamentous attachments.

Extended 1) The relative positioning of bones around a joint that results from extension; 2) A burial position in which the body is laid out straight, as if standing, often with the arms positioned along the sides of the body. In both cases, the opposite of flexed.

Extension A straightening movement that increases the angle between body parts. The classic karate chop is made by a rigid hand in which the fingers are extended. By convention, *extension* at the shoulder or hip joint is a dorsal (backward) swing of the limb. The opposite of flexion.

External A directional term meaning “outer;” the opposite of internal. The rib cage is *external* to the lungs and heart.

External acoustic meatus (EAM) The outer ear hole.

Extrinsic External to that which it acts upon. *Flexor pollicis longus*, a muscle that flexes the thumb, is considered an *extrinsic* hand muscle because the belly of the muscle is found deep in the forearm, not in the hand itself.

Facet A small articular surface, or a tooth contact. Bodies of the thoracic vertebrae have *facets* for articulation with the heads of ribs. Occlusal *facets* form on the chewing surfaces of the teeth shortly after crown eruption.

Femoral Of, belonging to, or related to the leg, specifically the thigh, or upper leg.

Fetus A not-yet-born, developing human.

Flexed 1) The relative positioning of bones around a joint that results from flexion; 2) A burial position in which the knees and hands are pressed against the chest, and the back and neck are bent forward. In both cases, the opposite of extended.

Flexion A bending movement that decreases the angle between body parts. When a hand is clenched into a fist there is strong *flexion* of the phalanges on the metacarpal heads. By convention, flexion at the shoulder or hip joint refers to a ventral (forward) movement of the limb.

Fontanelles Soft spots of cartilaginous membrane in the skull of a newborn that eventually harden and turn into bone.

Foramen (plural: *foramina*) An opening through a bone, usually a passage for blood vessels and nerves. The mental *foramen* is an opening on the lateral surface of the mandible.

Foramen magnum The large oval hole in the base of the skull through which the spinal cord passes.

Forensic osteology Osteological work aimed at the identification of relatively recently deceased individuals, usually done in a legal context.

Fossa (plural: *fossae*) A depressed area; usually broad and shallow. The olecranon *fossa* is located on the posterior surface of the distal humerus, where it receives the proximal ulna during full extension of the arm.

Fovea (plural: *foveae*) A pit-like, depressed area; usually smaller than a fossa. The anterior *fovea* of an unworn molar is seen in occlusal view.

Frankfurt Horizontal A plane defined by three osteometric points: the right and left porion points and the left orbitale. It is used to systematically orient the skull.

Frontal plane See coronal plane.

Gigantism A condition arising from an excessive production of somatotrophic hormone, causing an overstimulation of growth cartilages and resulting in gigantic proportions of the skeleton.

Glossal Of, belonging to, or related to the tongue.

Gomphosis The joint between the roots of the teeth and the alveolar bone of the jaws.

Greenstick fracture See incomplete fracture.

Groove A long pit or furrow. The intertubercular *groove* passes between the two tubercles on the humerus.

Hallucial Of, belonging to, or related to the big toe.

Hallux The first or big toe.

Hamulus A hook-shaped projection. The *hamulus* of the wrist's hamate bone gives the bone its name.

Harris lines Lines of increased bone density that represent the position of the growth plate at the time of insult to the organism. Formed on long bones due to growth arrest.

Haversian canals Also known as secondary osteons; freely anastomosing canals in compact bone that contain blood and lymph vessels, nerves, and marrow.

Head A large, spherical, usually articular end of a bone. The *head* of the humerus is the superior (proximal) end of the bone.

Helical In the shape of a helix.

Hematopoietic Related to the production and development of red blood cells.

Heterodont Having different, specialized types of teeth (*i.e.*, incisors, canines, premolars, and molars). The opposite of homodont.

Hinge joint A joint, such as the knee or elbow, allowing movement that is largely restricted to a single plane.

Hominid A member of the taxonomic family Hominidae, which includes humans as well as several extinct species that are evolutionarily closer to humans than to any of the other living great apes.

Horizontal plane See transverse plane.

Hyaline cartilage Smooth cartilage that covers the articular surfaces of bones.

Hydroxyapatite A dense, inorganic, mineral matrix; the second component of bone.

Hypercementosis A condition in which an excess of cementum forms on the root of a tooth.

Hyperostosis An abnormal growth of bone tissue.

Hyperplasia An excessive growth of bone or other tissue.

Hypertrophy Increase in the volume of a tissue or organ.

Hypoplasia An insufficient growth of bone or tissue; for teeth, dental enamel hypoplasia is a disturbance of enamel formation that often manifests itself in transverse lines, pits, or other irregularities on the enamel surface.

Idiopathic Describes a condition or disease that can result from different causes in different people. For an example, see diffuse idiopathic skeletal hyperostosis (DISH).

Idiosyncratic Used to describe a feature or trait that is peculiar to, or characteristic of, an individual.

Immature A still-growing individual (has one or more unfused secondary growth centers). Synonymous with juvenile.

Infancy The period between birth and three years after birth.

in situ In the exact place in which an object was placed or deposited.

in utero Still developing in the womb.

Inca bone A specific, named type of extrasutural bone found in some individuals. The triangular *inca bone* is formed when the occipital squama is separated from the rest of the occipital bone by a transverse suture at the level of the superior nuchal line.

Incisal A directional term for anterior teeth meaning “towards the biting surface of the crown.” Generally the opposite of apical. Used only with incisors and canines; occlusal is used for the posterior teeth.

Incomplete fracture A fracture in which breakage and bending of a bone are combined. Also called a greenstick fracture.

Individuation To distinguish from other individuals. The process of parsing the commingled bones of a multiple interment into constituent individuals is an example of *individuation*. Not to be confused with personal identification, in which remains are determined to be those of a specific, named person.

Inferior A directional term meaning “towards the bottom of the body” (in standard anatomical position).

Inhumation See burial.

Insertion The attachment point of a muscle that is on the more freely moving bone of the joint.

Interdigitated Intricately joined together (articulated), as when fingers are woven together.

Interment See burial.

Internal A directional term meaning “inner” the opposite of external. The *internal* surface of the parietal is marked by a set of grooves made by blood vessels that lie external to the brain.

Interobserver error Error stemming from variation in the accuracy of data recorded by different observers analyzing the same things.

Interproximal Between adjacent surfaces, especially of teeth. Synonymous with approximal.

Intramembranous ossification One of the two processes by which bone is formed in mammals. In contrast to endochondral ossification, intramembranous ossification does not involve a cartilaginous precursor of the bone. Instead, bones ossify by apposition on tissue within an embryonic connective tissue membrane. Bone formed intramembranously is sometimes referred to as dermal bone.

Intraobserver error Error related to the precision of data recorded by the same observer analyzing the same things at different times.

Intrasutural bones See Wormian bones, inca bone, and sutural bones.

Intrinsic Internal to that which it acts upon. *Flexor pollicis brevis*, another muscle that flexes the thumb, is considered an *intrinsic* hand muscle because the muscle is located entirely in the hand.

Inversion Turning the sole of the foot inward so that it faces toward the midline of the body. Also known as supination of the foot.

Joint Any connection between different skeletal elements.

Juvenile A still-growing individual (has one or more unfused secondary growth centers). Synonymous with immature.

Kyphosis The collapse of one or several vertebral bodies causing a sharp angle in the spine.

Labial Pertaining to lips. As a directional term for teeth, it refers to the side or surface of the tooth facing the lips. Its use is restricted to incisors and canines. See also buccal.

Labiolingual An axis passing from the labial (lip) side to the lingual (tongue) side of an incisor or canine; the axis in which the breadth or width of anterior teeth is measured. See also buccolingual and mesiodistal.

Lambdoid In the shape of the Greek letter λ (*lambda*), much like an inverted ‘Y’.

Lambdoid suture The suture that passes between the two parietals and the occipital bone.

Lamellar bone Bone whose microscopic structure is characterized by collagen fibers arranged in layers or sheets around Haversian canals.

Laminar Wall-like; usually applied to thin, vertical structures.

Lateral A directional term meaning “towards the side(s).” As a directional term, it refers to the portion of a bone farther from the midline of the body (the sagittal plane). Thus, the radius is lateral to the ulna in standard anatomical position.

Left Refers to the left-hand side of the individual being examined, not to the left-hand side of the observer.

Lentiform In the shape of a lentil; lens-shaped.

Lesion An injury or wound; an area of pathologically altered tissue.

Line A raised linear surface, not as thick as a torus or as sharp as a crest. The inferior temporal *lines* mark the superior extent of the *temporalis muscles*.

Lingual Pertaining to the tongue. As a directional term for teeth, it refers to the side or surface of the tooth facing the tongue.

Lipping Bone projecting beyond the margin of the affected articular surface, usually in osteoarthritis.

Lobate Having a lobe or lobes.

Lumbar Of, belonging to, or related to the loin, or lower back.

Lunate Shaped like a crescent, especially like a crescent moon.

Malleolus (plural: *malleoli*) A rounded protuberance adjacent to the ankle joint. It is easy to palpate (examine by touch) both lateral and medial *malleoli*.

Malocclusion The condition in which upper and lower teeth do not occlude, or meet, properly.

Mamelon Cusplets on the incisal edges of unworn incisors.

Manual Of, belonging to, or related to the hand.

Mastication The action of chewing (masticating).

Matrix 1) The [usually adhering] material (earth/soil/dirt, breccia, sand, etc.) in which remains or artifacts were originally encased; 2) The organic collagen-rich medium in which bones develop during ontogeny; 3) The dental plaque deposits formed by oral bacteria. See also substrate.

Meatus (plural: *meati* or *meatuses*) A short, wide canal. The external acoustic *meatus* is the canal that connects the middle and outer ear.

Medial A directional term meaning “towards the middle.” As a directional term, it refers to the portion of a bone closer to the right-left center of the body (the sagittal plane). Thus, the tibia is *medial* to the fibula. Not to be confused with mesial.

Median plane See sagittal plane.

Medullary cavity The canal inside the shaft of a long bone.

Mental Of, belonging to, or related to the chin.

Mesial A directional term for teeth meaning “towards the midline.” It refers to the side or surface of the tooth closest to the midline of the dental arcade. Not to be confused with medial.

Mesiodistal An axis passing from the mesial (closer to the midline of the arcade) side to the distal (farther from the midline) side of a tooth; the axis in which the length of a tooth is measured. See also buccolingual and labiolingual.

Metaphyses (singular: *metaphysis*) The expanded, flared ends of the shaft of a long bone.

Metopic suture The suture that passes between unfused frontal halves and only rarely persists into adulthood. Sometimes called the frontal suture.

Middle adult An individual between 35 and 50 years old. See also adult.

Midline See sagittal plane.

Midsagittal plane See sagittal plane.

Minimum number of individuals (MNI) The minimum number of individuals required to account for all of the elements in the assemblage.

Mitochondrial DNA (mtDNA) A small, nonnuclear genome that is inherited only maternally, often used in ancient DNA analysis because it is easier to retrieve than nuclear DNA.

MNI See minimum number of individuals.

Morphogen A molecule that influences morphogenesis.

Morphogenesis The development of form during ontogenesis.

Morphology The form and structure of an object.

Multiple interment A burial in which more than one individual is present.

mtDNA See mitochondrial DNA.

NAGPRA The Native American Graves Protection and Repatriation Act. A U.S. Federal law passed in 1990 that mandates the process that museums, Federal agencies, Native American tribes, and Native Hawaiian organizations must follow when negotiating the custody and/or repatriation of human remains, funerary objects, sacred objects, and objects of cultural patrimony.

Nasal Of, belonging to, or related to the nose.

Native American Colloquially, a person who can trace their ancestry to an aboriginal cultural group present in the Americas before the arrival of Columbus in 1492. Under NAGPRA, the term “‘Native American’ means of, or relating to, a tribe, people, or culture that is indigenous to the United States.”

Navicular In the shape of a boat.

Neck A constricted anatomical feature. On long bones, the neck is between the head and the shaft. On teeth, the neck (or *cervix*) is the junction between enamel and cementum. See also nuchal.

Necrosis Physiological death of a cell or a group of cells.

Neonatal Newly born; specifically, from birth to four weeks after birth.

Neural Of, belonging to, or related to the brain or nervous system.

Nonmetric trait Dichotomous, discontinuous, discrete, or epigenetic traits; nonpathological variations of tissues difficult to quantify by measurement.

Nuchal Of, belonging to, or related to the nape, or back of the neck.

Obtured Obstructed; closed or blocked off.

Occlusal A directional term for teeth meaning “towards the chewing surface of the crown.” Generally the opposite of apical. For anterior teeth, incisal is sometimes used instead of *occlusal*.

Odontoblasts Cells that form dentin through a process known as odontogenesis.

Odontogenesis Tooth formation and development.

Odontometric Relating to the measurement of teeth.

Old adult An individual over 50 years old. See also adult.

Ontogeny The development or course of development of an individual; growth.

Opposition Motion in which body parts are brought together. *Opposition* of the thumb and finger tips allows us to grasp small objects.

Orbital Of, belonging to, or related to the eye socket.

Origin The attachment point of a muscle which is on the more fixed bone of the joint.

Orthograde Having a habitually upright torso and, thus, an erect posture. Contrasts with pronograde.

Ossuary A communal grave made up of secondarily interred remains of individuals initially stored somewhere else.

Osteitis A general term used to refer to any inflammation of bone tissue caused by infection or injury.

Osteoarthritis Also called degenerative joint disease; the most common form of arthritis, characterized by a destruction of the articular cartilage in a joint, and accompanied by bony lipping and spur formation adjacent to the joint.

Osteoblasts The bone-forming cells responsible for synthesizing and depositing bone material.

Osteochondroma The most common tumor of bone; benign tumors, usually asymptomatic, that always arise at epiphyseal lines and protrude at right angles to the long axis of a bone.

Osteoclasts Cells responsible for the resorption of bone tissue.

Osteocyte Living bone cell developed from an osteoblast.

Osteogenesis Bone formation and development.

Osteoma (plural: *osteomata* or *osteomas*) Often called “button” *osteomata*; a mound of compact bone, usually on the ectocranial surface.

Osteomalacia A disease that causes a softening of the bones, usually linked to general malnutrition—particularly deficiencies in protein, fat, calcium, and phosphorous.

Osteometric Relating to the measurement of bones.

Osteomyelitis An inflammation of a bone caused by bacteria that usually enter the bone initially via a wound.

Osteon A Haversian system, the structural unit of compact bone composed of a central vascular (Haversian) canal and the concentric lamellae surrounding it; a primary osteon is composed of a vascular canal without a cement line, whereas the cement line and lamellar bone organized around the central canal characterize a secondary osteon.

Osteophyte A small, abnormal bony outgrowth often found at the margins of articular surfaces as a feature of osteoarthritis.

Osteoporosis Increased porosity of bone due to a reduction in bone mineral density.

Osteosarcoma A malignant tumor of the bone cells.

Ovoid In the shape of an oval.

Paleodemography The study of the demography of prehistoric populations.

Paleopathology The study of diseases in ancient populations as revealed by skeletal remains and preserved soft tissues.

Palmar A directional term for the hand meaning “towards the palm” (of the hand). When referring to a human in standard anatomical position, the term is synonymous with anterior in humans.

Parabolic In the shape of a parabola; a symmetrical curving line whose branches get gradually and increasingly close to parallel without ever becoming parallel.

Parasagittal section Any planar slice that parallels the sagittal plane.

Pathological fracture A fracture that occurs as a result of bones already having been weakened by other pathological or metabolic conditions, such as osteoporosis.

Patellar Of, belonging to, or related to the front of the knee.

Pedal Of, belonging to, or related to the foot.

Perikymata Transverse horizontal ridges and grooves on the surface of tooth enamel which represent the intersection of the striae of Retzius and the outer enamel surface.

Perimortem At, around, or just before the time of death.

Perinatal Around the time of birth; specifically, from 28 weeks *in utero* until one week after birth.

Periodontitis The inflammation of tissues around a tooth; can involve both soft tissues and the bone itself.

Periosteum Thin tissue covering the outer surface of bones (except in areas of articulation).

Periostitis A condition of inflammation of the periosteum caused by trauma or infection; can be acute or chronic.

Periostosis Abnormal bone formation on the periosteal surface of a bone.

Personal identification To positively determine that remains are those of a specific, named person. Not to be confused with individuation, in which skeletal individuals are distinguished from other skeletal individuals.

Piriform aperture The opening below and between the orbits; the nose hole. Also called the anterior nasal aperture.

Pisiform In the shape of a pea.

Planar joint A joint that allows two bones to slide across one another.

Plantar A directional term for the foot meaning “towards the sole” (of the foot). When referring to a human in standard anatomical position, the term is synonymous with inferior in humans.

Plantarflexion The flexing of the entire foot inferiorly, toward the ground at the ankle. Action in both dorsiflexion and plantarflexion occurs at the ankle. When a ballerina walks on her toes, her feet are strongly *plantarflexed*. The opposite of dorsiflexion.

Pollex The thumb or first digit of the hand.

Pollical Of, belonging to, or related to the thumb.

Polymerase chain reaction (PCR) A technique that acts as a “molecular photocopy machine” to produce many copies of a section of DNA, beginning with just a few molecules of DNA; this allows DNA to be retrieved from some skeletal remains.

Popliteal Of, belonging to, or related to the back of the knee.

Porosity A condition in which many small openings pass through a surface.

Porotic (or spongy) hyperostosis A condition exhibiting lesions, usually of the cranial vault, representing a thinning and often complete destruction of the outer table of the cranial vault.

Postcranial Refers to all bones in the skeleton except those of the cranium and mandible. Contrasts with cranial.

Posterior A directional term meaning “towards the back of the body” (in standard anatomical position).

Postmortem modifications Alterations to the bone that occur after the death of an individual.

Prenatal Before birth; from conception through the onset of labor.

Primary bony callus Woven bone formed when a callus is subsequently mineralized.

Primary interment A burial in which all the bones are in an anatomically “natural” arrangement; an articulated skeleton buried in the flesh.

Primary ossification center The first site where bone begins to form during growth; usually in the shaft of a long bone, or the body of other bones.

Process A bony prominence. The mastoid *process* forms the prominence behind the ear.

Pronation A rotary motion of the forearm that turns the palm from anteriorly facing (thumb lateral) to posteriorly facing (thumb medial). Typewriters are used with the hand in *pronation*.

Pronograde Having a habitually horizontal torso; also, the posture resulting from this anatomical configuration. Contrasts with orthograde.

Provenience The stratigraphic and spatial position, usually of an object.

Proximal A directional term meaning “closer,” and referring to that portion of a bone closer to the vertebral column. Thus, the tibial tuberosity is on the proximal tibia, and the head of a rib lies at the proximal end of the rib. Proximal can also be used as a term of relative position, regardless of the absolute position of the points or features in question; *eg*, the popliteal surface is proximal to the femoral condyles.

Pseudarthrosis A new or false joint arising between parts of a fractured bone that do not heal.

Quadrangle Rectilinear; in the general shape of a rectangle or square; *i.e.*, having four sides joining at 90° angles.

Radiograph An image produced on photographic film exposed to X-rays that have passed through an object.

Ramus (plural: *rami*) A branch. The pubic bone splits into two *rami* around the obturator foramen.

Reactive bone Bone in the process of being formed or lost, often in response to a pathological stimulus.

Rectus In a straight line; straight, linear.

Remodeling A cyclical process of bone resorption and deposition at one site.

Resorption The process of bone destruction by osteoclasts.

Rheumatoid arthritis Inflammation and degeneration of the joints, particularly those of the hands and feet; usually chronic and accompanied by deformities.

Rhomboid Shaped like a rhombus (any parallelogram besides a square or rectangle).

Rickets A form of osteomalacia resulting from vitamin D deficiency.

Ridge A linear bony elevation, often roughened. The lateral supracondylar *ridge* of the humerus borders the bone above the lateral epicondyle.

Right Refers to the right-hand side of the individual being examined, not to the right-hand side of the observer.

Rugose Roughened with wrinkles.

Saddle-shaped (or sellar) joint A joint that is saddle-shaped, such as the joint at the base of the thumb.

Sagittal plane A plane that divides the body into symmetrical right and left halves. Synonymous with midsagittal plane, median, and midline.

Sagittal suture The midline suture that passes between the parietal bones.

Sarcoma Originally, a malignant tumor originating in connective tissue. Some tumors known as sarcomas are now known to arise from epithelial tissue. Contrasts with carcinoma.

Scanning electron microscope (SEM) A device that produces an image of the surface of a metal-coated specimen by the reflection of electrons.

Secondary center of ossification Center of bone formation that appears following the formation of the primary center, such as the epiphysis of a long bone.

Secondary interment A burial in which the bones of a skeleton are disarticulated.

Sellar Having a saddle shape.

Serial homology Correspondence of parts in sequential bones, as in the vertebrae.

Sesamoid Shaped like a sesame seed.

Sesamoid bones Small bones that lie within tendons near a joint.

Sigmoid In the shape of the Greek letter 'S' (Σ , *sigma*). Recursively curving, like a snake.

Sexual dimorphism Differences between males and females.

Shaft The long, straight section between the ends of a long bone. The femoral *shaft* is roughly circular in cross section. See also diaphysis.

Shovel-shaped incisors Incisors with strongly developed mesial and distal lingual marginal ridges, imparting a shovel-like appearance to the tooth.

Sinus (plural: *sinuses*) Air sinuses are void chambers in the cranial bones that enlarge with the growth of the face. There are four basic sets of air sinuses: one each in the maxillae, frontal, ethmoid, and sphenoid bones. Venous sinuses are large chambers that are located around the brain and lie within the dura mater. Venous sinuses collect oxygen-depleted blood from the brain and route it to the jugular vein.

Skull The bones of the head, including both cranium and mandible.

Sphenoccipital synchondrosis Actually a synchondrosis; lies between the sphenoid and the occipital. Also called the basilar suture.

Spine Generally a longer, thinner, sharper process than an eminence. Synonymous with *spinous process*. Vertebral *spinous processes* are used in the identification of various vertebrae.

Splanchnocranium The facial skeleton.

Squamous Scale-like; in the form of a reptile's scale.

Squamous suture An unusual, scale-like, beveled suture between the temporal and parietal bones.

Standard anatomical position For humans, defined as standing with feet together and pointing forward, looking forward, and palms facing forward. Positioned thusly, none of the long bones cross each other.

Stenotic Abnormally narrowed or constricted (used for passages and internal spaces).

Striae (singular: *stria*) Also called *striations*. A general term that refers to parallel and/or closely spaced fine, shallow, and/or narrow lines, bands, or grooves. Examples include the *striae* of Retzius (in the enamel of teeth) and parietal *striae* (on the parietal bone above the squamous suture).

Striae of Retzius Growth surfaces of enamel. A three-dimension analog of the growth rings of a tree. See also perikymata and cross striae (circadian growth increments).

Subadult Sometimes used synonymously with immature, but usually used to imply a closer-to-mature individual.

Subchondral bone The compact bone covered by cartilage at the joints.

Subcutaneous Just below the skin. The anteromedial surface of the tibia is *subcutaneous*.

Substrate A general term for a substance or layer that underlies something; the ground is the substrate upon which we walk; or, in the early stages of endochondral ossification, osteoblasts are attached to a cartilaginous substrate. See also matrix.

Sulcus (plural: *sulci*) A long, wide groove. A strong supratrochlear *sulcus* is present on African ape crania but is weak or absent on *Australopithecus* crania.

Superficial Closer to the surface. The ribs are *superficial* compared to the heart.

Superior A directional term meaning “towards the top of the body” (in standard anatomical position).

Supernumerary teeth Teeth that exceed the expected number of teeth in any given category.

Supination A rotary motion of the forearm that returns the palm to a position in which the thumb is lateral. When chimpanzees beg for food the hand is often held in *supination*. The opposite of pronation.

Sutural bones Occurring within the cranial sutures; defined by abnormal or additional cranial sutures. Intrasutural bones are also called Wormian bones, intrasutural bones, or extrasutural bones.

Sutures See cranial sutures.

Symphysis A type of semi-rigid joint in which the ends of the bones are covered with a thin layer of hyaline cartilage, but the connection between the cartilage-covered bones is actually made by fibrocartilage.

Synchondrosis A type of semi-rigid joint in which the bones are joined by hyaline cartilage. Examples include epiphyseal plates and the sphenooccipital synchondrosis.

Syndesmosis Tight, inflexible fibrous joint between bones united by bands of dense fibrous tissue in the form of membranes or ligaments.

Synostosis The result when any two bony elements fuse together.

Synovial joints Freely moving joints such as the hip, elbow, knee, and thumb that are coated with a thin layer of hyaline cartilage, and lubricated by synovial fluid within a fibrous joint capsule.

Talon(id) The distal (posterior) portion of a primate molar added to the modified original triangle of cusps; use suffix -id for lower molars.

Taphonomy The study of processes that affect skeletal remains between death and curation.

Tarsal Of, belonging to, or related to the ankle.

Taurodontism The condition in which the pulp chamber is enlarged relative to the normal condition.

Temporal Of, belonging to, or related to the temples.

Thoracic Of, belonging to, or related to the chest.

TMJ Temporomandibular joint; the jaw joint between the mandible and cranium.

Torus (plural: *tori*) A bony thickening. The supraorbital torus on some *Homo erectus* frontal bones is very thick.

Transverse plane Any horizontal plane that divides the body into top and bottom portions. Synonymous with horizontal plane.

Trephination A practice in which an artificial hole is made in the cranial vault of a living person. Also called trepanation.

Trigon (id) The mesial (anterior) portion of a primate molar comprising the modified original triangle of cusps; use suffix -id for lower molars.

Trochanter One of two large, prominent, blunt, rugose processes found only on the femur. The larger of these is called the greater *trochanter*; the smaller is the lesser *trochanter*.

Trochlear Spindle- or spool-shaped. In the shape of a pulley: grooved in the center and raised on the edges.

Tubercle A small, usually rugose eminence; often a site of tendon or ligament attachment. The conoid *tubercle* is found along the inferior edge of the clavicle.

Tuberosity A large, usually rugose (roughened) eminence of variable shape; often a site of tendon or ligament attachment. The deltoid *tuberosity* marks the shaft of the humerus.

Typology The practice of choosing one individual to characterize a group, population, or species.

Vascular Of, belonging to, or related to vessels, specifically blood vessels.

Vault The arched roof of a cavity.

Ventral A directional term meaning “towards the belly.” When referring to a human in standard anatomical position, the term is synonymous with anterior.

Volar A general term, referring to the ‘hollow’ of either the hand or foot: in the hand, *volar* is synonymous with palmar, and in the foot, it is synonymous with plantar.

Volarflexion See plantarflexion.

Wormian bone Any of the small, irregular bones along the cranial sutures; an extrasutural bone.

Young adult An individual between 20 and 35 years old. See also adult.